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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SIMITOSKI, MICHAEL J

ART UNIT	PAPER NUMBER
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2134

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/963,359

Applicant(s)

TANG, ZHAOMIAO

Examiner

Michael J Simitoski

Art Unit

2134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 are pending.

Claim Objections

2. Claims 21-22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 21-22 have not been further treated on the merits.

3. Claims 1-22 are objected to because of the following informalities:

In claim 1, the double space after “infected” in line 5 should be a single space.

In claim 1, before “determining” should be replaced with “and determining” to create a complete sentence.

In claim 11, “a virus decision unit” should be replaced with “and a virus decision unit” to create a complete sentence.

In claims 1 & 11, “if yes, the target object to be scanned contains virus, otherwise the target object to be scanned is free of virus” should be replaced with “if yes, the target object to be scanned contains a virus, otherwise the target object to be scanned is free of viruses”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2134

5. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 & 11, “that the computer viruses reside” is indefinite. *For the purposes of this Office Action, this limitation is understood to read “on which the computer viruses reside”.*

Regarding claims 1 & 11, “for inducing virus infection” is indefinite. *For the purposes of this Office Action, this limitation is understood to read “that induce virus infection”, which is referring to “computer viruses”.*

Claim 1 recites the limitation "the viruses possibly attached" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the viruses possibly attached" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 1 & 11, the limitation “if yes, the target object to be scanned contains a virus” is neither an active method step nor an apparatus limitation and it is unclear how the limitation affects the scope of the claims.

Regarding claims 2 & 12, the phrase "i.e." renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claims 4 & 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. These claims are omnibus type claims. Specifically, the claims recite “all kinds of baits that have different sizes

Art Unit: 2134

and contents for inducing viruses of different types and various infection conditions". The use of "all kinds" and "various" renders the claims indefinite.

Regarding claims 4 & 14, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claims 4 & 14, the limitation "baits of DOS files type for files of DOS COM type to induce viruses of DOS COM type" is unclear.

Claims 4 & 14 contain the trademark/trade names WORD and DOS. Claims 7 & 17 contain the trademark/trade names UNIX, WINDOWS and DOS. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe DOS, WORD, UNIX and WINDOS and, accordingly, the identification/description is indefinite.

Regarding claims 5 & 15, "as possible as they can" is vague and indefinite.

Regarding claims 9-10 & 19-20, the term "a small memory space" is a relative term which renders the claim indefinite. The term "small" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Art Unit: 2134

Regarding claims 9-10 & 19-20, the claims recite the limitation "which has the same structure as a normal one, including ... necessary system files"; however, a standard disk does not need to include system files.

Regarding claims 9-10 & 19-20, the claims recite the limitation "which has the same structure as a normal one, including ... bait files for inducing viruses", however, a standard disk does not need to include bait files.

Regarding claims 9-10 & 19-20, the phrase "etc" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "etc"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Regarding claims 9-10 & 19-20, the term "a normal one" is a relative term which renders the claim indefinite. The term "normal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Different disk types and formats have different structures, for instance 720 kb versus 1.44 Mb disks and disks for different file systems, such as Macintosh-based disks, FAT, FAT32, etc.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2134

7. Claims 1 & 11, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,842,002 to Schnurer et al. (**Schnurer**). Schnurer discloses simulating in a computer a virtual computer circumstance/trapping device (col. 5, lines 7-10 & col. 6, lines 64-67) that the computer viruses reside, providing a plurality of objects or baits/files to be infected by computer viruses for inducing virus infection (col. 7, lines 39-43), loading a target object/data stream (col. 6, line 64 – col. 7, line 11 & col. 7, lines 25-52) to be scanned into said simulated virtual computer circumstance/trapping device, activating/executing the target object/virus to be scanned in said simulated virtual computer circumstance/trapping device to induce the viruses possibly attached on said target object to infect the plurality of objects to be infected/files and generating standard samples/infected files which have been infected (col. 7, lines 47-52), comparing the plurality of objects/files after processing in the activating/executing step with the plurality of objects/files to be infected originally provided, determining whether there is any change (CRC check) or not, if yes, the target object to be scanned contains virus, otherwise the target object to be scanned is free of virus (col. 7, lines 39-52).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2134

9. Claims 2, 8, 12 & 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer**, as applied to claims 1 & 11 above, in further view of U.S. Patent 6,338,141 to **Wells**, in further view of U.S. Patent 6,067,410 to **Nachenberg**.

Regarding claims 2 & 12, Schnurer lacks analyzing and learning from the viruses and cleaning viruses. However, Wells teaches that to allow for rapid response for new viruses (col. 2, lines 66-67), it is useful to analyze a virus and learn from a virus by analyzing generated standard samples/isolated samples and extracting information and knowledge on the viruses/signatures when it is determined that the target object to be scanned contains a virus (Step 10a) (col. 9, line 57 – col. 10, line 13). Further, Wells teaches cleaning viruses from the infected target object (col. 9, lines 24-26) on the basis of said information and knowledge on the viruses and on the basis of the modification that viruses have made to said infected objects (col. 9, line 57 – col. 10, line 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to analyze and learn from the viruses and clean viruses from infected target objects. One of ordinary skill in the art would have been motivated to perform such a modification to allow for rapid response for new viruses, as taught by Wells (col. 2, lines 66-67, col. 9, lines 24-26 & col. 9, line 57 – col. 10, line 13). As modified, Schnurer is silent regarding specifically removing the virus's body and modifying key information which has been changed by said virus. However, Wells teaches that a file that has been infected with a computer virus contains a virus body/D that is run before the program/B (col. 3, lines 20-25 & Fig. 2B) and a virus header/C replaces the program header/A (col. 3, lines 20-25 & Fig. 2B). Wells discloses a non-infected file having a header/A and a body/B. (Fig. 2A). Further, Nachenberg teaches that to restore virus-infected files to their uninfected states

Art Unit: 2134

(abstract), the virus body/viral code is removed/truncated (col. 3, lines 49-50) and key information/host bytes are modified/restored to original locations based on information and knowledge on the viruses/repair routine (col. 3, lines 25-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to remove the virus's body/D and modify key information/header A which has been changed by the virus. One of ordinary skill in the art would have been motivated to perform such a modification to restore virus-infected files to their uninfected states, as taught by Nachenberg (abstract & col. 3, lines 25-50).

Regarding claims 8 & 18, Schnurer, as modified above, teaches virtually running the virus to restore the original target object from the infected host object (Nachenberg, col. 3, lines 13-22).

10. Claims 3 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer**, **Wells** and **Nachenberg**, as applied to claims 2 & 12 above, in further view of **Connectix** Virtual PC software by Connectix, Described in "Connectix Virtual PC" datasheet (VPC) and "Connectix Virtual PC Family Frequently Asked Questions" (FAQ). Schnurer, as modified above, is silent regarding details of the emulation. However, Connectix teaches simulating a Central Processing Unit (CPU)/Pentium chip (VPC, p. 1, ¶2), simulating an Operating System (OS)/PC-based operating system (VPC, p. 1, ¶1 & ¶3), and simulating peripheral storage devices by simulating storage space and structures of various peripheral storage devices/CD-ROM and PC disk/floppy disk (VPC, p. 2, ¶3). Virtual PC is used to run applications for one platform (such as Windows) on another platform (such as Macintosh). Further, FAQ teaches that Virtual PC

Art Unit: 2134

simulates both a hard disk and memory for the emulated software, in this case, Windows (FAQ, p. 9, ¶7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to simulate a CPU, OS, storage device and memory. One of ordinary skill in the art would have been motivated to perform such a modification to run Windows from within a Macintosh, as taught by Connectix (VPC, p. 1, ¶1-3, p. 2, ¶3 & FAQ, p. 9, ¶7).

11. Claims 4-7 & 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer, Wells, Nachenberg and Connectix**, in further view of U.S. Patent 5,832,208 to Chen et al. (**Chen**).

Regarding claims 4 & 14, Schnurer discloses multiple baits of different sizes and contents (FAT, executables) (col. 8, lines 13-20), but lacks specifically DOS COM files simulated boot sector types for inducing viruses of the DOS boot sector and WORD file types. However, Nachenberg teaches that the bulk of software viruses in DOS based systems are COM files. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include DOS COM bait files. One of ordinary skill in the art would have been motivated to perform such a modification to include as bait commonly infected files, as taught by Nachenberg (col. 8, lines 13-20). Further, Chen teaches that boot sector viruses infect the system are of the disk, such as the boot record of floppy diskettes and hard disks (col. 1, lines 57-67) and that Word macro viruses can infect emails which is of particular concern (col. 3, lines 16-32). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include WORD file types and to simulate a boot sector. One of

Art Unit: 2134

ordinary skill in the art would have been motivated to perform such a modification to detect, using Schnurer's invention, a boot sector or WORD file virus, as taught by Chen (col. 1, lines 57-67 & col. 3, lines 16-32).

Regarding claims 5 & 15, Schnurer discloses multiple baits of different sizes and contents (FAT, executables) (col. 8, lines 13-20).

Regarding claims 6 & 16, Schnurer discloses simulating the system time to generate virtual system date and time for inducing the viruses that are sensitive to date and time (col. 7, lines 33-35).

Regarding claims 7 & 17, Schnurer, as modified above, discloses simulating WINDOWS (Connectix VPC document, p. 1, ¶3).

12. Claims 9-10 & 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer, Wells, Nachenberg and Connectix**, in further view of "Thomas' NT Utility Disk" by Thomas **Berger**. Schnurer, as modified above, discloses scanning a hard disk or floppy diskette for viruses (col. 2, lines 46-62), discloses that viruses replicate themselves from PC (hard disk) to floppy (col. 4, lines 37-56) and discloses an emulated environment (col. 4, lines 8-16), but lacks the disks explicitly being a simulated virtual hard disk or virtual floppy disk, which have the same structure as normal ones. However, Berger teaches the DiskImg program which copies the content of a whole disk to a regular file (p. 1, ¶1) which can be mounted and written to like a regular disk (p. 1, ¶1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to simulate a virtual floppy disk drive or hard disk drive.

Art Unit: 2134

One of ordinary skill in the art would have been motivated to perform such a modification to provide access to the disk via a file, as taught by Berger (p. 1, ¶1).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

“Filesystems HOWTO” by Hinner (August 2000) is cited for teaching exporting all tracks of a file system as normal files, which can be mounted on the system (used like a standard disk) (p. 32, §8.10).

“Diskless Nodes HOW-TO document for Linux” by Robert Nemkin (July 2000) is cited for teaching virus protection offered by diskless systems, such as the emulation system VMWare (p. 4).

“Running Windows apps under Linux” by Richard Sharpe (October 2000) is cited for teaching that VMWare emulates a PC (p. 4) and can be run out of a file on the host file system, allowing backups.

“Examining Vmware” by Jason Nieh et al. is cited for teaching that virtual machines “virtualize” all aspects of the computer, including processor, OS, disks, display, net, etc.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Simitoski whose telephone number is (571) 272-3841. The examiner can normally be reached on Monday - Thursday, 6:45 a.m. - 4:15 p.m.. The examiner can also be reached on alternate Fridays from 6:45 a.m. – 3:15 p.m.

Art Unit: 2134

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse can be reached at (571) 272-3838.

Any response to this action should be mailed to:

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Or faxed to:


(703) 746-7239 (for formal communications intended for entry)

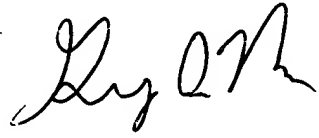
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(571) 273-3841 (Examiner's fax, for informal or draft communications, please label "PROPOSED" or "DRAFT")

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

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April 12, 2005


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